Endothelial nitric oxide synthase

Endothelial nitric oxide synthase (eNOS) is an enzyme that plays a key role in the production of nitric oxide (NO) in the endothelial cells lining the blood vessels. NO is a small, gaseous signaling molecule that is involved in a variety of physiological processes, including regulation of blood pressure, vascular tone, and platelet aggregation.

eNOS is primarily found in endothelial cells, where it converts the amino acid L-arginine to NO in the presence of oxygen and cofactors such as tetrahydrobiopterin (BH4) and nicotinamide adenine dinucleotide phosphate (NADPH). eNOS is regulated by a number of factors, including shear stress, which is the frictional force exerted on the endothelial cells by blood flow.

Impairment of eNOS activity and decreased NO bioavailability have been implicated in various cardiovascular diseases, including hypertension, atherosclerosis, and coronary artery disease. Conversely, upregulation of eNOS and increased NO production have been shown to have protective effects on the cardiovascular system. Thus, eNOS is a potential target for the development of new therapies for cardiovascular diseases.